

In the Specification:

Please delete the heading at page 1, lines 1 to 3.

Please add a new heading at page 1, above line 4, as follows:

TITLE OF THE INVENTION

Please replace the Title at page 1, line 4 with a replacement Title amended as follows:

~~Apparatus~~ Device for Producing Water on Board of an
~~Aircraft~~ Airplane

Please add a new heading at page 1, above line 5, as follows:

FIELD OF THE INVENTION

Please add a new heading at page 1, above line 14, as follows:

BACKGROUND INFORMATION

Please add a new heading at page 2, above line 10, as follows:

SUMMARY OF THE INVENTION

Please delete the paragraph at page 3, lines 3 to 4.

Please replace the paragraph at page 3, line 13 to page 4, line 2, with a replacement paragraph amended as follows:

The combustion chambers serve for starting the gas turbine and the high temperature fuel cells and for temporarily increasing the air throughput of the gas turbine e.g. for starting or take-off of an aircraft. ~~[[The]]~~ During continuous operation, exclusively the thermal energy of the high temperature fuel cell is used ~~exclusively~~ for generating the air throughput. ~~during continuous operation.~~ The water generation takes place at the anode side i.e. at the hydrogen side of the high temperature fuel cell. This so called anode exhaust gas consists of 100% water steam (superheated steam) when the supplied hydrogen is completely transformed. This superheated steam is fed through a turbine where the steam is cooled by expansion whereby thermal energy is converted into rotation energy of the turbine shaft. This rotational energy is ~~[[sued]]~~ used in a compressor for generating the pre-pressure that is required at the hydrogen side for the high temperature fuel cell.

Please replace the paragraph at page 4, lines 3 to 27, with a replacement paragraph amended as follows:

The water vapor is eventually condensed out in a further process stage to obtain pure H₂O, that is, distilled water. This water is supplied to the different consumers or to a salination unit to produce drinking water. Gray water

becoming available is collected in a collecting container in the same way as the water proportion discharged when dehydrating black water. The water quantities are evaporated in an evaporator operated by the heat available from the water condensation process and supplied together with the steam proportion from the anode exhaust gas of the high temperature fuel cell, not needed for water generation, to the second turbine stage of the gas turbine. On the air side a so-called fan sucks-in external air and/or cabin exhaust air. During normal operation this fan is driven by the second turbine stage, during starting by an electric motor. The air passing through the fan is first pre-compressed by a compressor arranged ~~downstream~~. ~~The air downstream, and~~ is then further compressed in a further compressor for the combustion chambers and for the air ~~[[sides]]~~ side of the high temperature fuel cell. The thermal energy introduced through the combustion chambers or the high temperature fuel cell first drives the first turbine stage and, following the above described introduction of gray water into the hot exhaust air flow, the second turbine stage. The number of the compressor ~~stages, of the~~ and turbine stages, as well as the number of the combustion chambers and of the high temperature fuel cells can be varied as desired depending on the requirements with regard to different types.

Please add a new heading, and a new paragraph, and a further new heading at page 5, above line 9, as follows:

BRIEF DESCRIPTION OF THE DRAWING

The invention will be described in connection with an example embodiment, with reference to the accompanying drawing, of which the single figure schematically shows a block diagram of the example embodiment of an inventive apparatus for producing water on board an aircraft.

DETAILED DESCRIPTION OF AN EXAMPLE EMBODIMENT OF THE INVENTION

Please replace the paragraph at page 6, line 19 to page 7, line 14, with a replacement paragraph amended as follows:

It is possible to collect used water as well as not needed condensate in a container 32. The air 20 that was heated in the condensation process 18 is advantageously used for evaporating the gray water in a separate container 33 into which the gray water is fed by a pump [[37]] 45, whereby a filter is provided for retaining solid and suspended materials. Water having a distilled quality is taken from the condensation process 18 via a drinking water tank 22, and is distributed in such a manner that galleys 23, hand wash basins 24 and the showers 25 receive drinking water that has been generated by adding a dose of salt [[23,]] in a salination unit 43, while toilets 27 and the air

humidification 26 are supplied with distilled water. The turbine stages 8, 9 can drive the compressor stages 5, 6 as well as the fan 11, whereby the compressor stages 5, 6 pressurize the air side of the high temperature fuel cell 7 and of the combustion chamber 7A. The air throughput 3 of the fan 11 can be used either for propulsion in an engine or in an APU for pressurizing the compressed air systems and/or of the air conditioning. For this purpose respectively one fan 11 is coupled with a first compressor stage 5 and a second turbine stage ~~[[9]]~~ 9, and a second compressor stage 6 and a first turbine stage ~~[[8]]~~ 8, that run on coaxial shafts one within the other and at different revolutions per minute. The number of coaxial shafts running one within the other is constructed as desired.

Please replace the paragraph at page 7, lines 15 to 26, with a replacement paragraph amended as follows:

The waste water is collected in a collection tank 28, which has a separator/blower 29 connected to an outlet thereof, and the waste water is then completely or partially dehydrated in a dehydration unit 30 connected to an outlet of the tank 28 through a pump 44. ~~[[at 30.]]~~ The water proportion thus gained is fed to the gray water collection tank 32 from which it is pumped by a pump 45 to the gray water evaporator 33. Waste water is discharged at 31 from the tank 28. It is of special advantage:

that the apparatus can also be operated without dispensing water to a water system,

that the combustion chambers and the high temperature fuel cells can be operated separately and in any desired combination with one another; and

that in a separate operation of combustion chambers or high temperature fuel cells 7 individual combustion chambers or high temperature fuel cells can be switched off.

Please add a new paragraph at page 7, following line 26, as follows:

Further as shown in the single drawing figure, the inventive apparatus may additionally have the following features. The high temperature fuel cell 7 can provide a direct current output 4. An output of the gray water evaporator 33 can provide a gray water injection 10 into the low pressure turbine stage 9. Air 21 can also be output from the gray water evaporator 33. The turbine 16 can drive a hydrogen compressor 13 that provides a flow of compressed hydrogen 15 to the fuel cell 7, and can be coupled via a belt drive 37 with a starter 12 that is coupled to the fan 11 for starting the propulsion plant 2. Hydrogen 14 can be provided to the hydrogen compressor 13 from the hydrogen evaporator 17. Water steam 34 from the turbine 16 can be fed to the condenser 18 and the gray water evaporator 33. Exhaust air or steam 36 can be emitted from the low pressure turbine stage 9.